

APPENDIX A

SUMMARY OF WATER QUALITY IN THE KENNEBEC RIVER BASIN

Prepared for the Atlantic Sea-Run Salmon Commission
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At the request of the Atlantic Sea-Run Salmon Commission, this water quality summary focuses on the Kennebec mainstem, Carrabassett River, Sandy River, Wesserunsett Stream, and Sebasticook River. Based on historical evidence showing that oxygen levels during winter did not present a problem to fish, even before 1978, field data were collected only between May and October. Occasionally some information is available on inorganic and organic compounds. Water quality in the Kennebec River Basin has improved dramatically since 1978 when most of the major discharges were treated for biochemical oxygen demand (B.O.D.) wastes. Data collected during the summers of 1983, 1984, and 1985 indicate that dissolved oxygen levels in most of the drainage exceed 80% saturation and 7.0 mg/l during the hottest days of summer. Exceptions do occur, however, which in some instances could limit use of particular stretches of water by salmonids.

The Carrabassett River and its tributaries contain high levels of oxygen (90% saturation). With the exception of Stanley Stream in Kingfield, dissolved oxygen was never observed to fall below 7.0 mg/l and exceeded 22°C only on very warm days in the slower and wider portions. Stanley Stream in Kingfield is now in the process of being cleaned up as the Town constructs sewage treatment facilities. This should remove the only serious source of B.O.D. containing wastes from Carrabassett. In the headwaters, development, road building, and forest clearing has the potential of affecting water quality in the Carrabassett. For example,

turbidity and siltation in the river increases sharply during heavy runoff events. While no obvious biological affects have been noted, the overall biological impact is not yet known.

The mainstem of the Sandy River has no known significant water quality problems based on samples collected from eight mainstem sites. Dissolved oxygen remained above the 75% saturation level throughout the season and biological monitoring indicated water quality was sufficient to support aquatic life indigenous to the Sandy River. Four tributaries, however, have depressed levels of oxygen considered marginal for salmonids. Cascade Brook, Farmington and Wilson Stream, North Chesterville have oxygen concentrations as low as 5.2 mg/l and 61% saturation. Little Norridgewock Stream, Chesterville has oxygen concentrations as low as 4.5 mg/l and 51% saturation. An unnamed stream in New Sharon which drains a now closed out oxidation lagoon is virtually anoxic during low flow and high temperatures. Minimum concentrations typically occur in late summer. These tributaries, however, do not significantly influence water quality in the mainstem of the Sandy River due to their small flow relative to that of the Sandy River. With the exception of these four tributaries, water quality in the Sandy River drainage is sufficient to support salmonid populations.

Water quality in Wesserunsett Stream was sampled only at one spot, near its confluence with the Kennebec River in Skowhegan. Dissolved oxygen was consistently above 80% saturation and temperatures did not exceed 24°C.

The Sebasticook River and its East Branch continue to have serious water quality problems. Between Newport and Clinton, summertime dissolved oxygen frequently falls below 5.0 mg/l and at times is less than 1.0 mg/l at Detroit. Even at Winslow, dissolved oxygen is as low as 5.7 mg/l or

65% saturation. During the rest of the year dissolved oxygen in the East Branch is considerably higher although it has been observed to be as low as 8.1 mg/l on occasion outside the summer months. The segment below Newport should improve markedly in 1986 when the town connects to its new treatment plant. An unknown influence on water quality below Newport is the effect of the Sebasticook Lake restoration project which involves a late summer drawdown. The water released is typically rich in nutrients due to algae. Since algae are also a source of B.O.D., night time oxygen levels below Newport may continue to experience a depression. The actual amount of the depression can not yet be predicted due to the overwhelming masking effect of Newport's presently untreated wastes. Above Sebasticook Lake, between Corinna and the lake, fish kills recently have been frequent. Benthic invertebrate analysis of that portion of the river reveals a very serious chronic toxicity problem. The segment below Corinna is now under study with toxicity tests being conducted to locate the source of the problem. No prognosis for this stretch can be made. Several tributaries to the East Branch Sebasticook also have poor water quality. Stetson Stream, Martin Stream, Carleton Stream and Mill Stream all experience low (less than 60%) dissolved oxygen levels in the summer.

The West Branch Sebasticook has no known problems even with a tannery in its headwaters. Toxicity tests using Daphnia pulex and Ceriodaphnia reticulata and dissolved oxygen levels support the concept that water quality is sufficient to support salmonids.